



IHO Capacity Building Programme

**The State of
Hydrography and Nautical Charting
in the
Republic of Angola**



September 2018

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Abbreviations

AN	Angolan Navy
CBSC	Capacity Building Sub-Committee
DH	Angolan Navy Direction of Hydrography
DHN	Brazilian Directorate of Hydrography and Navigation
EEZ	Exclusive Economic Zone
ENC	Electronic Navigational Chart
IH	Portugal Hydrographic Institute
IHO	International Hydrographic Organization
IHSMA	Hydrography and Marine Signalization Institute of Angola
IMO	International Maritime Organization
IMPA	Maritime and Harbours Institute of Angola
MBES	Multi-Beam Echo Sounder
MPM	Ministry of Fishery and Sea
MRMP	Ministry of Mineral Resources and Petroleum
MSI	Maritime Safety Information
MT	Angolan Ministry of Transports
NHS	National Hydrographic Service
NHC	National Hydrographic Committee
NtMs	Notice to Mariners
PCA	Primary Charting Authority
RHC	Regional Hydrographic Commission
RNC	Raster Navigational Chart
SAIHC	Southern African & Islands Hydrographic Commission
SBES	Single Beam Echo Sounder
SOLAS	United Nations Convention for the Safety of Life at Sea
UKHO	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on the Law of the Sea
WMO	World Meteorological Organization
WWNWS	Worldwide Navigation Warning Service

Executive Summary

The Hydrography and Marine Aids to Navigation Institute of Angola (IHSMA), from Republic of Angola, sent an invitation to IHO requesting a technical visit to assess the current status of nautical charting and hydrography in the country and to provide advice to the government and to stakeholders on a way ahead. The visiting team was defined to be comprised by Brazil and the International Hydrographic Organization (IHO) Secretariat.

The Republic of Angola received a previous IHO Technical Visit in 2008. Report of this visit may be viewed on the IHO website at http://www.iho.int/mtg_docs/CB/CBA_TechnicalVisits.htm.

The Republic of Angola has been a member of the International Maritime Organization (IMO) since 1977 and is a signatory to the SOLAS Convention, but is not a member of the International Hydrographic Organization (IHO). It has associated member status within the SAIHC. In general, there is small awareness in Angola regarding the obligations and provisions under SOLAS Chapter V, Regulations 4 and 9 to ensure that appropriate hydrographic and charting services are made available. IHSMA is trying to raise this level by several means including the Workshop held on 27 September, during the Technical Visit.

The Government of Angola, through its various agencies, does not have an adequate level of awareness of the current state of hydrography and nautical charting in their country and the benefits of modern hydrography for economic growth, safety of navigation and protection of the marine environment. Awareness was heightened at the working level by the visit of the IHO Technical Team.

IHSMA was created in 2003 and implemented in 2011. It assumed main responsibility for national hydrography and nautical cartography development in Angola. The IHO Team considers that IHSMA staff, in all levels, is fully aware of the national responsibility and takes intense effort in its successful delivery. However, IHSMA does not have trained hydrographic surveyors nor nautical cartographers.

Angola has currently no national capability for nautical chart production. Portugal Hydrographic Institute (IH) has produced Nautical Charts for the region and ENCs have been produced by UKHO. The nautical charts have not been updated with new surveys and coastline and bathymetric information in the charts are generally outdated. A comprehensive resurvey and chart updating programme is required so to contribute to a modern maritime and port infrastructure and to allow Angola to fulfil its international obligations in accordance with Regulations 4 and 9 of Chapter V of the SOLAS Convention. No formal agreement was identified between IHSMA, IH and UKHO.

There are some recent surveys in the country, conducted in the last years, by private companies, mainly to address the needs of National Ports and Offshore Companies. However, not all of them were promulgated for mariners nor have updated nautical charts. Regulation and its implementation are needed to guarantee that relevant information is forwarded to IHSMA in order to update nautical documents and for dissemination of maritime safety information (MSI). Training is also needed in order for IHSMA to be able to process data that can be collected by its survey boats.

IHSMA is the National Maritime Safety Information (MSI) coordinator in Angola. It receives reports from Angola's Maritime Authority, the Maritime and Harbours Institute of Angola (IMPA), about navigational information and from INAMET (National Institute of Meteorology) about meteorological information. Although it sends some information to NAVAREA VII coordinator and IH as Primary Charting Authority (PCA) of the area, there is no broadcast of MSI by NAVTEX. The capacity of local warnings broadcast was lost with the change of local legislation in the last 20 years that did not establish a competent structure to be responsible for this service. This means that mariners may not be aware of new navigational significant information before they arrive in Angola nor do the existing charts contain these information. The establishment of local and coastal warnings broadcast structure should be considered a high priority in the development of MSI in Angola, but until this has been achieved all local and coastal warnings should be transmitted to the NAVAREA VII coordinator for promulgation.

It was evident to the visiting team that Angola already possesses some hydrographic capability, awareness and willingness, and the effective cooperation and coordination of the national activities will

prove a positive step towards Angola to build a solid maritime infrastructure to support the safety of navigation and economic growth.



REPORT



1. Introduction

The International Hydrographic Organization (IHO) is an intergovernmental international organization, currently comprising 89 Member States. The IHO seeks to ensure that all States with coastlines and maritime interests provide adequate and timely hydrographic data, products and services, thereby advancing maritime safety and efficiency in support of the protection and sustainable use of the marine environment. The United Nations recognizes the IHO as the competent authority for hydrography and nautical charting. The Secretariat of IHO is based in Monaco. The Republic of Angola is not currently a member of IHO.

The IHO has encouraged the establishment of Regional Hydrographic Commissions (RHCs) to coordinate hydrographic activity and cooperation at the regional level. Full Members of RHCs are IHO Member States; however, other States can also participate as Associate Members or Observers. RHCs work in close cooperation with the Organization to help further achieve its goals and programs. RHCs meet at regular intervals to coordinate hydrographic and chart production, plan joint survey operations, and resolve schemes for International Chart coverage in their regions. Angola is an Associate Member of the Southern Africa and Islands Hydrographic Commission (SAIHC).

This report has been written with the express intention of assisting the Government of Angola, in particular its National Hydrographic Service, IHSMA, to strengthen and develop its hydrographic capability to meet its current and future needs and its international maritime obligations under the UN Convention for the Safety of Life at Sea (SOLAS). The report comprises a description of the visit, major conclusions and a number of recommended actions for consideration by the relevant organizations.

The report is supported by various Annexes providing detailed information obtained in the visit, an analysis of the existing charting situation and surveys, and recommendations for the strengthening of national hydrography in the Republic of Angola.

2. IHO Technical Visit

A request for a high-level visit to the Republic of Angola by IHO was made by IHSMA Letter 0132/14.03/2018, dated 4 July 2018 to support the development of the national infrastructure of Angola in order to: meet the obligations arising from the SOLAS Convention, Chapter V, to ensure the preservation of the marine environment and to support the national economic development. The visit was confirmed by IHO letter S1/4630, dated 6 July 2018, establishing the period 25 to 28 September for the visit that would also be used for a technical visit for the country funded by the Capacity Building Sub-Committee (CBSC).

The IHO Team first called on the Director General of IHSMA, Mr Manuel Narciso. The main meetings were held at IHSMA facilities, and headquarters of the visit stakeholders in Luanda.

The meetings enabled the IHO Team to build up a picture of the conspicuous features of the hydrographic activities. The meetings also facilitated the appreciation of data availability and data sharing amongst the national representatives. It was clear to the visiting team that most of stakeholders that were visited were well prepared for the meetings and able to actively interact with the team.

This resulting report has been written with the express intention of assisting the Government of Angola to develop and strengthen its hydrographic capability to meet its current and future needs and also its international maritime obligations under the SOLAS Convention. The report comprises a description of the visit, a brief assessment of the current situation and an analysis of the nation's hydrographic needs, major conclusions and a number of recommended actions for consideration by the relevant authorities.

Annex A to this report presents the Technical Visit Programme. Annex B contains the Workshop Programme held by IHSMA during the visit. Annex C describes the points of contact of the organizations visited and considered during the period.

3. Assessment of the Previous Technical Visit

The Republic of Angola received a previous IHO Technical Visit in 2008. The Report of this visit may be viewed on the IHO website at https://www.iho.int/mtg_docs/CB/Assessment_Reports.htm [accessed 15 Jul 2018]. The report generated from this visit has been consulted in the preparation of this report.

Recommendations that have been made following previous technical visit to Angola are summarized under the key headings below with an assessment of progress made with each item.

- **National Hydrographic Committee:** The visiting team strongly recommended the creation of a National Hydrographic Committee. Although IHSMA and its responsibilities were well established by law in 2015, the need of coordination with other governmental institutions and the lack of regulation of how IHSMA will handle its hydrographical responsibilities still keep the establishment of a National Hydrographical Committee as a prime necessity in Angola.
- **Maritime Safety Information (MSI):** It was recommended the development of a plan for implementation of a robust organization for MSI and GDMSS. Until this moment no progress was made in this regard. IHSMA still needs to take the necessary steps to nominate a National Coordinator to liaise with the NAVAREA VII Coordinator and to establish procedures for updating charts and nautical documents.
- **Hydrographic Survey related capabilities:** The report recommended IHSMA should take the responsibility to be the national manager of all hydrographic data collected in Angolan waters and establish a data management system. It also recommended IHSMA to create a small survey team to gain experience in hydrographic surveying. Although a law has established IHSMA as the national manager for all hydrographic data in 2015, no implementation of regulation that allows the survey data to be received by IHSMA, or progress in a data management system was made. Survey boats and equipment had been acquired, but there still remain the need of more expertise to achieve its purpose of a well-established small survey team. There are still huge requirements related with coordination regarding use and installation of tide gauges in Angola.
- **Training:** The need for training remains one of the issues of Hydrography in Angola. IHSMA has requested the Brazilian Hydrographic Service, Directorate of Hydrography and Navigation (DHN) for 4 places in hydrographic courses in Brazil during 2019 in order to train its personnel.
- **Funding:** The report stated that IHSMA, in order to be fully operational in its activities, would require comprehensive economical support from the Angolan Government/ Ministry of Transport (MoT) for several years. Some investments were made by the acquisition of buoys and survey vessels. There is still need of legal arrangements to allow IHSMA to receive money related to its activities, such as lighthouses fees. Some of the fees are still been received by other Angolan institutions, such as IMPA, that were previously responsible for IHSMA tasks before its creation.

4. Angola Hydrographic Assessment

The following is a general assessment of the situation in Angola regarding hydrography and nautical charting services.

4.1 National Hydrographic Awareness

In general the awareness in Angola of the obligations and provisions under SOLAS Chapter V Regulations 4 and 9 to ensure that appropriate hydrographic and charting services, even if it is not in a satisfactory level, is improving. Angola has been a member of IMO since 1977, is a signatory to the SOLAS Convention, but is not a member of the IHO. It has Associated Member status within the SAIHC.

The Government of Angola, through its various agencies, has relative knowledge of the current state of hydrography and nautical charting in Angola and the benefits of modern hydrography to economic growth, safety of navigation and protection of the marine environment. Enhancing awareness was one of the key tasks of the Visiting Team.

IHSMA used the opportunity of the presence of both IHO and IALA Visit Teams to improve the awareness of various stakeholders from the Angolan government by promoting a Workshop related with the hydrography under the motto: "The importance of IHSMA activities to guarantee safety to navigation".

4.2 National Hydrographic Authority and Infrastructure

IHSMA is the National Hydrographic Authority responsible for coordinating hydrography and nautical charting in the country. It was created in 2003 and implemented in 2011 as a department of IMPA. Only in 2015 it was instituted by a Presidential Decree as an institution directly subordinated to the Ministry of Transport with an approved statute and was effectively activated as the NHS. As a recently new institution IHSMA needs to implement and regulate most of its activities.

Although the statute guarantees that IHSMA should authorize and receive all hydrographic data from private and governmental surveys in the country, there is no further regulation that specifies how this process should be done (required information, data format specification, metadata, deadlines for sending the data, etc.). This lack of regulation results on stakeholders' uncertainty on which and how the information should be send to IHSMA. Therefore many of them do not send the data that would be needed to update the nautical charts in Angola. None of the hydrographic data received by IHSMA from the other stakeholders, until now, is in digital format. And most of it has very few metadata or information regarding sounding reduction.

Besides IHSMA, the Angolan Navy Direction of Hydrography (DH) is related to some hydrographic activities in Angola. DH is involved in the coordination of the Angola Plan of the Hydrographic Survey of the Continental Shelf within the Inter-ministerial Commission for the Delimitation and Demarcation of Angola Maritime Spaces. DH participates in the planning of the hydrographic survey work, done by private companies contracted by the Ministry of Mineral Resources and Petroleum (MRMP). It is also responsible for the only permanent Tide Gauge in Luanda. None of this data was shared with IHSMA. DH has also a good relation with IH in Portugal were it trains its personnel in hydrography.

4.3 Maritime Safety Information (MSI)

IHSMA is also designated by law as the primary MSI authority in Angola. Nevertheless, there is no clearly established MSI infrastructure that coordinates its activities with the Worldwide Navigation Warning Service (WWNWS) implemented globally by the IMO, WMO and IHO. Maritime safety information is not sent in regular basis to the PCA nor to the METAREA and NAVAREA coordinators. Local radio warnings promulgation was also interrupted about 18 years ago due to a gap of responsibilities within the new Angolan communication structure.

It was clear to the IHO Technical Team that there was general lack of understanding and coordination of MSI affairs under the SOLAS obligations.

The paper charts and ENC's of the Angolan Coast and Ports have not been subject to regular NtMs. Currently there is no liaison between the IHSMA and the PCA. It is necessary to establish a formal routine flow of MSI to the PCA if charts are to be maintained to the standards required for safety of navigation.

The Technical Team recommended that a regulation and definition of how MSI will flow to both PCA and NAVAREA coordinator is an urgent issue that has to be solved and that Angola may benefit from valuable MSI training opportunities of the IHO Capacity Building Programme.

4.4 Hydrographic Surveying

Although some Angolan waters have been surveyed by IHSMA with modern standards, these surveys were not saved in digital or analogic files that can be used for nautical charting.

Private companies have been conducting multi-beam echo sounder surveys in support of oil and gas offshore activities. Also the MRMP has contracted hydrographic surveys to support Angola’s claim to the Commission on the Limits of the Continental Shelf. Currently, there is no formal mechanism in place to ensure that this data is brought to the attention of and made available to IHSMA and other relevant stakeholders.

The current state of surveys as summarized in IHO Publication C-55 "Status of Hydrographic Surveying and Nautical Charting Worldwide" (updated by IH in 02 May 2016) is in the table below:

Survey Coverage	A	B	C
Depths < 200m	50	48	2
Depths > 200m	3	10	87

- A= percentage which is adequately surveyed.
- B= percentage which requires re-survey at larger scale or to modern standards.
- C= percentage which has never been systematically surveyed.

Annex D presents the complete table of C-55 related information as organized by IH.

4.5 Nautical Charting

Angola has no national capability for nautical chart or publication production at this stage. The Angolan coast is currently covered by Portuguese and British charts, with data compiled from Portuguese Charts, and twenty ENCs which are produced by Portugal (1), United Kingdom (16) and South Africa (3). The existing charts published and maintained by the IH and UKHO do not necessarily contain the latest navigationally significant information. The data from which the charts are compiled is noted as being in many cases old, imperfect and with undefined geodetic reference systems.

Annex D presents the summary of the cartographic information (C-55) and Annex E the analysis of the charts of the Angolan Waters.

4.6 Hydrographic Resources

IHSMA has very few trained hydrographers and nautical cartographers. Its personnel was trained more than 2 decades ago and did not receive any further extensive training since then. IHSMA has requested the Brazilian Hydrographic Service, Directorate of Hydrography and Navigation (DHN) for 4 places in its hydrographic courses in Brazil, during 2019, in order to train its personnel.

Other trained personnel are in the Angolan Navy Direction of Hydrography (DH), which recently sent people for courses in IH in Portugal. It is also responsible for keeping the only permanent tide gauge installed in the country, but no data from it is shared with IHSMA.

IHSMA has recently acquired two boats for hydrographic purposes. The most important is Catamaran KUANDA, received in 2017 and equipped with Kongsberg EM 2040C Multi-beam Echo Sounder System with the full suite of supporting devices. The other one is a small motor boat that also can be equipped with a portable Kongsberg EM 2040C Multi-beam Echo Sounder, owned by IHSMA that is used in Luanda Port area surveys. Both of them are well manned and maintained.

Even if IHSMA has the resources for the surveys, it has no capability to archive and process the survey data.

(1) The Angolan Ministry of Fishery and Sea will receive, at the end of 2018, the 74 meters scientific research vessel BAIA FARTA equipped, besides other scientific gear, with a Kongsberg EM 122 Multi-beam Echo Sounder. It is recommended that IHSMA should arrange a bilateral agreement with MPM in order to allow the use of this research vessel also for the Angolan hydrographic needs.

4.7 Additional stakeholders

IMPA, as the National Maritime Authority, is another major stakeholder. It is responsible to receive and concentrate all the information from the national ports that should update the nautical charts. A regulation is needed to guarantee that this information will flow and reach IHSMA for this purpose.

5. A Way Ahead

5.1 Maritime Safety Information

Maritime Safety Information (MSI) is considered by the IHO as the first phase in hydrographic capacity building and whilst the IHO Technical Team could see that progress has been made in this area it has concerns that the national MSI system is not efficiently operating.

The IHO recommends that every coastal State should designate a national MSI coordinator. It is recommended that IHSMA regulates how the MSI information will flow and the responsibilities regarding this matter. In addition it is essential that IHSMA establish a focal point of contact to act as the national MSI coordinator and a deputy point of contact to act as the national MSI coordinator during the post holder's absence and to assume the post in due course. Both persons will require the necessary training which is frequently provided under IHO CB training activities. To assist in this the SAIHC CB Coordinator should submit the MSI training requirement of Angola in the next CBSC meeting.

However, as all hydrographic and maritime stakeholders have an interest and input to MSI, a local seminar should be organized to all these stakeholders enhancing awareness of what is MSI, how it is disseminated and what their role is in this process.

The IHO Technical Team strongly recommends that a formal working relationship should be established between the NAVAREA VII coordinator in South Africa and the national MSI coordinator. This relationship should include regular contacts, allowing the NAVAREA VII coordinator to know that the link is being maintained and become aware of the situation in Angola. It is also recommended that IHSMA should seek the re-establishment of Luanda Radio for promulgating the local and coastal warnings by radio.

The following contact information refers to the Navarea VII Coordinator:

NAVAREA Contact Information:

Address: South African Navy Hydrographic Office
Private Bag X1 Tokai
Cape Town 7966
South Africa

Contact details:

Operational Point of Contact of NAVAREA VII Coordinator:
Tel: / +27 21 787 2445 / +27 787 2408
hydrosan@iafrica.com

5.2 National Hydrographic Surveying and Charting

The Republic of Angola has extensive hydrographic surveying needs. Surveys are inadequate and not compliant to modern standards. The existing charts published and maintained do not necessarily contain

the latest navigationally significant information. The data from which the charts are compiled is noted as being in many cases old, out-dated and on undefined geodetic reference systems. To assist in this matter, IHO Technical Team recommended IHSMA to establish a Charting Plan and a Priority Survey Plan. IHSMA may seek assistance from a well-established Hydrographic Service through a bilateral agreement as an interim solution until the in-house survey, including data processing and storage, and charting capacity is available.

5.3 Bilateral Arrangements for Surveying and Charting

Bilateral agreements with established hydrographic services are a valuable means of fulfilling SOLAS obligations for countries with a limited and or developing hydrographic capability. Angola's charts are currently produced and published by IH and UKHO but the visiting team could not identify any formal arrangement. It is recommended to Angola to formally designate the PCA and to establish a formal bilateral agreement as an interim solution until the in-house chart production is established.

5.4 National Hydrographic Committee

It was evident to the visiting team that Angola, through IHSMA, already possesses hydrographic capability, awareness and willingness. Effective cooperation and coordination with other national agencies and stakeholders will prove a positive step towards the establishment of a formal regulation regarding how hydrographic information should flow to IHSMA and will help Angola to build a solid maritime infrastructure to support the safety of navigation and economic growth.

To coordinate hydrographic effort for the effective execution of SOLAS responsibilities and the efficient management of a State's maritime area the IHO recommends the establishment of a National Hydrographic Committee, possibly headed or secretariat by IHSMA as the national hydrographic service, to provide input to future regulation and coordination of the hydrographic programme and setting national charting and surveying priorities. In this way, the stakeholders are in a position to assist in the continuing maintenance of the charts, longer term planning and perhaps also to the programme budget.

All hydrographic stakeholders need to be involved in contributing to Angola national hydrographic programme. This is not only to identify and prioritise national requirements, but also to contribute to the execution of the programme. This could be through contributions in-kind, such as the provision of boats, personnel or through contributions to enlist contract support – for example surveying areas targeted for development. All stakeholders should be aware of the importance to forward all relevant hydrographic information to the national coordinator for hydrography and charting, IHSMA.

The need for coordination of the national hydrographic effort was clearly demonstrated to the IHO Technical Team. It is recommended that the regular meetings of the stakeholders are held as allowed for in its terms of reference to make best use of Angola's valuable hydrographic assets.

5.5 National Hydrographic Capability Development

Angola and IHSMA has significant national hydrographic resources but lacks a coordinated approach to develop its staff and obtain the best results from the equipment available. There are people that studied hydrography in DH but very few in IHSMA. Even though IHSMA has recently required seats in Brazilian DHN courses, it is strongly recommended that NHS proposes a medium and long term coordinated plan to ensure the formation of a satisfactory number of Category B hydrographic surveyors. Such plan would provide the necessary professional experience to fulfil Angola's hydrographic needs. In addition it is recommended that, at least in the short term, using the National Hydrographic Committee, all trained hydrographic governmental staff is considered as a national resource pool and engage in survey operations that are taking place within the country – government and private ones – to ensure that their professional development is maintained.

There are limited opportunities for international hydrographic training. A list of courses is contained in IHO publication C-47 - *Training Courses in Hydrography and Nautical Cartography*, freely available

from the IHO website. The list of the FIG/IHO/ICA recognized programmes in Hydrography and Nautical Cartography can be found in the IHO website under "Capacity Building". Short courses in the fundamentals of hydrographic data gathering are available through the IHO Capacity Building Programme for member states.

An additional source of capacity building is to include clauses in commercial survey contracts in the country to include capacity building. This can be achieved by amending national regulations that control surveys in the national territorial waters and the EEZ.

6. Technical Visit Conclusions

Based on discussions and the facts obtained, the following principal conclusions have been reached:

- (1) There is limited relative awareness on the importance of hydrography in Angola and efforts are being made to improve it.
- (2) The Angolan existent hydrography related regulation is insufficient for IHSMA to effectively implement and execute all the activities that are legally under its responsibility.
- (3) An effective MSI service needs to be put in place in order to support the safety of navigation, the safety of life at sea and the protection of the marine environment.
- (4) IHSMA has well manned, maintained and equipped boats capable of meeting most of the nation's hydrographic immediate requirements. The Ministry of Fishery and Sea is acquiring a research vessel that will be capable of deeper water surveys. IHSMA should arrange a bilateral agreement with MPM in order to allow the use of this research vessel also for the Angolan hydrographic needs.
- (5) A capacity building plan is necessary in order to provide the human resources for an effective operation of IHSMA and achieve the goals it has envisioned.
- (6) The charts covering Angola could be improved with data held by private companies and a better coordination with relevant government stakeholders.
- (7) The establishment of the National Hydrographic Committee, led by IHSMA, can provide the framework to enhance cooperation amongst the various stakeholders.
- (8) The Angolan government and in particular IHSMA have committed significant resources to the establishment and maintenance of new hydrographic resources for the safety of navigation in Angola's waters and the economic development of the nation.
- (9) Angola does not produce or maintain its paper charts and ENC's and has no formal agreement with any PCA.
- (10) IHSMA is going through a period of staff qualification and equipment acquisition which will need careful handling to allow the organization to maintain its output and prepare for the future.

7. Technical Visit Recommended Actions

- (1) IHSMA to establish the necessary regulation to meet the requirements for the collection and circulation of nautical information, necessary to maintain existing charts and publications up to date. This is the phase 1 of the capacity building and should be done as an immediate action,
- (2) IHSMA to notify the SAIHC Chair the relevant contact information about the national coordinator for MSI,
- (3) SAIHC Chair to communicate to the NAVAREA VII Coordinator the relevant contact information of the Angolan national coordinator for MSI,
- (4) IHSMA to establish the necessary workflow with the NAVAREA VII coordinator and assure a permanent flow of information,

- (5) IHSMA to establish with IMPA a procedure on how to submit the relevant MSI to the National MSI Coordinator,
- (6) IHSMA to develop a National Maritime Safety Information Plan as a matter of priority and ensure its execution,
- (7) IHSMA to establish a MSI page on its website to publish the relevant MSI and Notices to Mariners (NtMs),
- (8) IHSMA to liaise with the PCA and other chart production nations to ensure that new navigational significant information is forwarded and included in existing charts of Angola;
- (9) IHSMA to establish a formal agreement with MPM in order to employ the scientific research vessel BAIA FARTA for hydrographic surveys, including the establishment of procedures to allow data acquisition to modern standards, acquisition of software and hardware,
- (10) IHSMA to establish a formal agreement within the Inter-ministerial Commission for the Delimitation and Demarcation of Angola Maritime Spaces and MRMP to allow it to access and use past hydrographic survey data used by both of these institutions.
- (11) IHSMA to establish, a programme for the revision of all the published charts of Angola and a priority programme for the surveys, and keep the chart producers informed,
- (12) IHSMA to create a national programme to encourage all mariners and other interested parties to report discrepancies on existing charts,
- (13) IHSMA to coordinate the establishment of a network of tide gauges in the main ports and relevant areas,
- (14) IHSMA to promote the establishment of National Hydrographic Committee at the Government level and constantly engage with the relevant stakeholders in order to coordinate the hydrographic activities in a national level while contributing to the high level awareness,
- (15) IHSMA to conduct a survey to identify all the relevant stakeholders that could potentially be part of the NHC and those that can be beneficiaries of the hydrographic services and products,
- (16) IHSMA to continue the effort to liaise with the foreign affairs Ministry of the Government of Angola to send a letter to Government of Monaco to accede to the Convention on the IHO,
- (17) IHSMA to allocate regular funding and travel support to fulfill the duties of the Service and to represent Angola in appropriate international forums, and in particular, to attend relevant meetings of IHO,
- (18) IHSMA to apply to the SAIHC for the short term assistance of an established hydrographic service to develop the national hydrographic infrastructure for Angola and the participation in a MSI course in the following years,
- (19) IHSMA to develop and monitor a coordinated training plan such that staff of the hydrographic service and involved personal in the government can gain the necessary training and professional experience,
- (20) SAIHC CB coordinator to inform IHSMA regarding the CB training opportunities in the region and elsewhere, especially if some is conducted in Portuguese language,
- (21) IHSMA to profit from the training opportunities as approved in the IHO CB Work Programme, especially those related to phase 1,

- (22) IHSMA to request that national hydrographic services with staff experienced in MBES methods be invited to Angola to review survey practices,
- (23) IHSMA to establish a formal bilateral agreement with a well-established Hydrographic Service, to be the PCA,
- (24) IHSMA to make use of the IHO Publication M-2 (The Need for National Hydrographic Services) for raising awareness throughout the country.

Technical Visit Programme

MONDAY (24.09.2018)			TUESDAY (25.09.2018)		WEDNESDAY (26.09.2018)		THURSDAY (27.09.2018)		FRIDAY (28.09.2018)	
TIME	ACTIVITY	LOCAL	ACTIVITY	LOCAL	ACTIVITY	LOCAL	ACTIVITY	LOCAL	ACTIVITY	LOCAL
MORNING	MEETING WITH IHSMA, ANGOLA TELECOM AND NAVY DH	IHSMA	VISITS TO THE PORT OF LUANDA AND TERMINALS	PORT OF LUANDA	MEETING WITH THE MOMR, MPM AND LOCAL MARITIME AUTHORITY OF THE PORT OF LUANDA	IHSMA/ PORT OF LUANDA	WOKSHOP: THE IMPORTANCE OF IHSMA ACTIVITIES IN THE GUARANTEE FROM SAFE NAVIGATION	PORT OF LUANDA	MEETING WITH STAFF FOR FINAL BALANCE	IHSMA
AFTERNOON	LABOR MEETING WITH IMPA		FIELD VISIT (MARITIME PASSENGER TERMS AND NAVIGATION CHANNELS)	MT						

Workshop Program

08:30 - RECEPTION AND ACCOMMODATION OF GUESTS;
08:50 - ENTRY OF THE NATIONAL ANTHEM
09:00 - WELCOME - PCA OF THE PORT OF LUANDA
09:10 - OPENING ADDRESS OF IHSMA GENERAL DIRECTOR
09:30 - ACT CULTURE
09:50 – IHO PRESENTATION
10:40 - COFFE BREAK;
11:10 – IALA PRESENTATION
11:40 – BRAZILIAN DHN PRESENTATION
12:20 NEW CHALLENGES OF IHSMA AGAINST MARITIME PROJECTS, IT
S TECHNICAL AND HUMAN CAPACITY PRESENTATION
13:00 – THE BLUE ECONOMY PRESENTATION
13:40 - ADDRESS OF CLOSURE OF IHSMA GENERAL DIRECTOR;
14:00 - LUNCH;
END

List of Contacts

Name	Organization	Telephone Mobile or Fax	Postal Address Email Address
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C-55 Input from Portugal

Angola (H)

Hydrographic surveying / Levés hydrographiques / Levantamientos hidrográficos

Survey coverage Couverture hydrographique Cobertura hidrográfica		Depth < 200m Profondeur < 200m Profundidad < 200m			Depth > 200m Profondeur > 200m Profundidad > 200m		
		50	48	2	3	10	87
 0%	Adequately surveyed Correctement hydrographié Adecuadamente levantado						
 0%	Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento						
 0%	Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente						
Notes Notes Notas	<p>1. Priorities are:</p> <p>a. Maritime Shipping Routes:</p> <p>(1) Up to date information for offshore installations to ensure safe navigation in their vicinity. This is especially pertinent in the approaches to malongo and Futila terminals.</p>						

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

GMDSS implementation Mise en œuvre du SMDSM Implementación SMSSM	Status Status Estado	Notes Notes Notas
Master plan Plan cadre Plan principal	NO	
A1 area Zone A1 Zona A1	NO	
A2 area Zone A2 Zona A2	NO	
A3 area Zone A3 Zona A3	NO	
NAVTEX NAVTEX NAVTEX	NO	Coastal Warnings promulgated as NAVAREA VII messages via SafetyNet
Safety NET Safety NET Safety NET	YES	NAVAREA VII messages

Angola (H)

Nautical charting / Cartographie marine / Cartografía náutica

Coverage of charts published Couverture des cartes publiées Cobertura de cartas publicadas			Offshore passage Navigation au large Pasaje offshore			Landfall and Coastal passage Atterrissage et navigation côtière Recalada y Pasaje costero			Approaches and Ports Approches et ports Aproches y puertos		
100%	Covered by INT or other paper charts meeting S-4 Couvert par des cartes papier INT ou autres conformes S-4 Cubiertas por cartas de papel INT o otras cumpliendo S-4		100	0	0	60	0	0	100	0	0
0%	Covered by RNC meeting S-61 Couvert par des RNC conformes S-61 Cubiertas por RNC cumpliendo S-61										
0%	Covered by ENC meeting S-57 Couvert par des ENC conformes S-57 Cubiertas por ENC cumpliendo S-57										
Paper charts showing depth in meters Cartes papier avec les profondeurs en mètres Cartas de papel con profundidades en metros			Paper charts referenced to a satellite datum Cartes papier rapportées à un système géodésique satellitaire Cartas de papel referidas a un datum satelital			Data source Source des données Origen de los datos					
Notes Notes Notas	<p>1. The waters of Angola are covered by Portuguese charts, mainly issued before 1974, most of which require modernisation.</p> <p>2. UK produces RNCs covering some of Angola's waters.</p>										

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

Navigation information Informations nautiques Información náutica	Status Status Estado	Notes Notes Notas
Local warnings Avertissements locaux Avisos locales	YES	
Coastal warnings Avertissements côtiers Avisos costeros	YES	Promulgated by NAVAREA VII
NAVAREA warnings Avertissements NAVAREA Avisos NAVAREA	NO	Promulgated by NAVAREA VII
Information on ports and harbours Information sur les ports et rades Información sobre puertos	YES	Passed to UK (UKHO)

Last update / Mise à jour / Actualización: 02/05/2016

Charting Analysis of Angola Waters

1. Angola Chart Coverage

The Republic of Angola does not have a chart production capability and relies historically on the IH to fulfil this function. The resume of chart coverage for Angola shown in IHO Publication C-55 - *Status of Nautical Charting* (updated 02 May 2016) is shown in the table below, as updated by IH. There are no significant gaps in coverage.

Chart Type	% Covered by INT Charts	% Covered by RNCs	% Covered by ENCs
Small Scale: Offshore Passage	100	0	N/A
Medium Scale: Landfall, Coastal Passage	60	0	N/A
Large Scale: Approaches and Ports	100	0	N/10

IHO C-55 Status of Chart Coverage

While C-55 shows that Angola is well covered by paper charts, it must be noted that the quality of the underlying data is not adequate. The surveys were not done to modern standards. Even if there is no information about ENCs in C-55, Angolan waters and ports are covered mostly by ENCs made by UKHO.

2. IH Charts

The published charts and current state of maintenance is shown in the table below. Percentage of WGS84 charts are %17 and the percentage of metric charts are %100 of the portfolio.

IH Chart	Title	Scale	Published (Last Edition)
312	Ponta Albina à Foz do Cunene	1/200.000	-
334	Lucala à Pedra do Feitiço (Rio Zaire)	1/40.000	1975
334-A	Lucala à Ponta Quiombe (Rio Zaire)	1/20.000	1972
334-B	Ponta do Quiombe à Ponta das Palmeiras (Rio Zaire)	1/20.000	1973
334-C	Ponta das Palmeiras à Pedra do Feitiço (Rio Zaire)	1/20.000	1973
333	Fuma-Fuma à Lucala (Rio Zaire)	1/40.000	1973
333-A	Pendi à Lucala (Rio Zaire)	1/20.000	1972
332-A	Baía de Diogo Cão (Rio Zaire)	1/15.000	1991
332	Foz ao Fuma-Fuma (Rio Zaire)	1/40.000	1991
356	Porto de Ambrizete	1/15.000	1955
357	Porto do Ambriz	1/10.000	1970
358	Enseada de Capulo	1/10.000	1955
359	Baía do Dande	1/15.000	1954
360	Porto de Luanda	1/15.000	1971
341	Baía do Dande ao Porto de Luanda	1/60.000	1992
342	Barras da Chicala e Corimba	1/15.000	1972

343	Porto de Luanda à Ponta das Palmeirinhas	1/60.000	1992
363	Baía do Suto	1/10.000	1974
365	Porto Amboim	1/15.000	1991
366	Novo Redondo	1/10.000	1975
369	Porto do Lobito	1/10.000	1987
370	Baía de Benguela	1/20.000	1992
372	Baía Farta	1/20.000	1971
373	Enseada do Cúio	1/10.000	1974
374	Baía dos Elefantes e Baía da Equimina	1/15.000	1950
375	Baía de Santa Maria	1/10.000	1975
376	Baía de Santa Marta	1/20.000	1941
377	Baía das Salinas	1/7.500	1974
380	Baía do Baba	1/10.000	1942
383	Porto de Moçâmedes	1/15.000	1970
383-A	Baía de Moçamedes (Porto Salazar)	1/5.000	1970
385	Baía dos Tigres (Plano do Fundeadouro do Leão)	1/50.000	1945
384	Porto de Tombwa (Porto Alexandre)	1/20.000	1991
1005	São Tomé e Príncipe e Angola	1/200.000	1974
1006	Angola ao Cabo da Boa Esperança	1/3.000.000	1974
72101	Gamba a Luanda	1/1.000.000	2013
72102	Luanda à Baía dos Tigres	1/1.000.000	2013
73205	Ponta Grossa à Foz do Cunene	1/350.000	2013
73204	Lobito à Ponta Grossa	1/350.000	2013
73203	Cabo Ledo ao Lobito	1/350.000	2013
73202	Cabeça da Cobra ao Cabo Ledo	1/350.000	2013
73201	Pointe Tchitembo à Cabeça da Cobra	1/350.000	2012

Summary of IH Charting

3. ENCs

There are 20 ENCs produced by Portugal, UK and South Africa covering the Angolan waters.

ENC No	Usage	Title	Published (Last NtoM/Year)	ER issued since Publication
ZA1N0010	Overview	Northern Waters of Namibia	2017	3
GB104209	Overview	Atlantic Ocean - Ascension Island and Freetown to Luanda	2017	7

GB104203	Overview	South Atlantic Ocean - Saint Helena and Lobito to Walvis Bay	2017	9
ZA2N0010	General	Kunene River to Palgrave Point	2011	1
PT271101	General	Lendana to Baía dos Tigres	2017	3
GB200311	General	Africa - West Coast - Pointe Kouango to Pointe-Noire	2017	2
ZA3N0010	Coastal	Kunene River to Sand Table Hill	2011	1
GB300310	Coastal	Ponta Grossa to Kunene River	2017	2
GB300309	Coastal	Lobito to Ponta Grossa	2016	2
GB300308	Coastal	Angola - Cabo Sao Braz to Ponta do Egito	2016	2
GB300307	Coastal	Angola - N'zeto to Cabo Ledo	2017	5
GB300306	Coastal	Congo - Angola and Congo (Democratic Republic) - N'Kossa Terminals to Cabeça da Cobra	2017	8
GB41215H	Approach	Africa - West Coast - Angola - Enseada do Cuio	2016	3
GB41215G	Approach	Africa - West Coast - Angola - Gunza-Kabolo (Novo Redondo)	2016	3
GB41215F	Approach	Africa - West Coast - Angola - Baía de Santa Maria	2016	3
GB41215E	Approach	Angola - Porto do Lobito	2016	6
GB41215D	Approach	Africa - West Coast - Angola - Porto Amboim	2016	4
GB41215C	Approach	Africa - West Coast - Angola - Baía Farta	2016	3
GB41215B	Approach	Africa - West Coast - Angola - Porto Alexandre	2016	3
GB41215A	Approach	Africa - West Coast - Angola - Baía de Santa Marta	2016	3

Summary of ENC